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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/019,289	01/04/2002	Richard Kergen	P67515US0	1648
136	7590	01/23/2004		
JACOBSON HOLMAN PLLC 400 SEVENTH STREET N.W. SUITE 600 WASHINGTON, DC 20004				
EXAMINER				
MACARTHUR, VICTOR L				
ART UNIT		PAPER NUMBER		
3679		9		

DATE MAILED: 01/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/019,289

Applicant(s)

KERGEN, RICHARD

Examiner

Victor MacArthur

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-26 and 31-35 is/are rejected.
- 7) ☒ Claim(s) 27-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

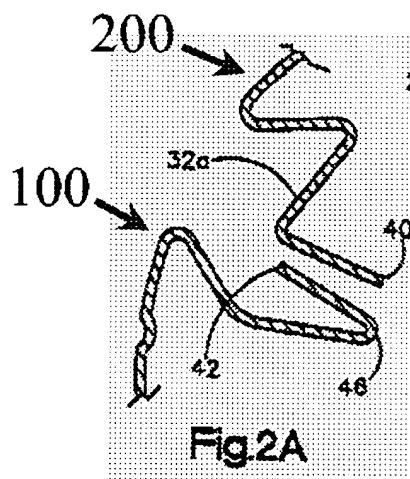
Claim Objections

- The phrase “low” (line 4 of claim 14) is a relative term and should be omitted to improve claim clarity. The term is not defined by the claim and the specification does not provide a standard for ascertaining the requisite degree.

Claim Rejections - 35 USC § 102

Claims 14, 16, 26, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Laffler U.S. Patent 5383346 (see marked-up fig.2A below).

Claim 14. Laffler discloses (figs.1, 2, 2a) a method for manufacturing a complex shape



structural component with an open cross section, **preferably** (but not necessarily) U-shaped, or with a closed cross section by assembling at least two simple sheets (100, 200) of metal parts, at

Art Unit: 3679

least one of the metal parts having an elastic limit of more than 400 MPa (60000 pounds per square inch equates to 413.6 MPa, col.3, ll.40-45), and low formability (with respect to other materials such as annealed aluminum alloy 1100), the method comprising the steps of: bending one or more metal parts (parts of 100 and 200) to form one or more flanges by at least one bending process; arranging the flange or flanges so that the metal parts being relative to each other in a junction section (44); and crimping the flange or flanges along the junction section of the metal parts to form one or more curved hems (46) in order to assemble the parts.

Claim 16. Laffler discloses that a ratio of a radius of the hem to a sum of thickness of the various parts (100, 200) one wishes to assemble along the junction section is between 2 and 10.

Claim 26. Laffler discloses that after the hem crimping, blocking of the hem to prevent the assembled parts from sliding along the junction section is achieved by imbrication. The word "imbrication" is taken by the examiner to mean, "to overlap" in accordance with Merriam-Webster's Collegiate Dictionary Tenth Edition. The layers of the hem of Laffler overlap each other to resist sliding via friction thus meeting this limitation within the broadest reasonable interpretation of the claim language.

Claim 31. Laffler discloses a product obtained by the manufacturing method described in claim 14, having at least two simple sheet metal parts (100, 200) in order to construct a structural component, at least one metal parts having a very high elastic limit (60000 pounds per square inch equates to 413.6 MPa, col.3, ll.40-45), and low formability (with respect to other materials such as annealed aluminum alloy 1100) wherein the metal parts have been formed by at least a bending process and are arranged with respect to each other along a junction section (44), and

Art Unit: 3679

are assembled with a curved hem (46) along the junction section, the hem mechanically reinforcing the structure.

Claim 32. Laffler discloses that a ratio of a radius of the hem to a sum of thickness of the various parts (100, 200) one wishes to assemble along the junction section is between 2 and 10.

Claim Rejections - 35 USC § 103

Claims 14-19, 31-33 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessely U.S. Patent 4055133.

Claim 14. Wessely discloses (fig.8) a method for manufacturing a complex shape structural component with an open cross section, **preferably** (but not necessarily) U-shaped, **or** (not and) with a closed cross section by assembling at least two simple sheets of metal parts (2, 4), at least one of the metal (col.6, ll.5-10) parts having an elastic limit, and low formability (with respect to other materials), the method comprising the steps of: bending one or more metal parts to form one or more flanges by at least one bending process (Figs.1-8); arranging the flange or flanges so that the metal parts being relative to each other in a junction section (19); and crimping the flange or flanges along the junction section of the metal parts to form one or more curved hems (19) in order to assemble the parts. Wessely states that the metal parts are steel (col.6, ll.5-10). Wessely does not expressly state what type of steel is used. Tempered 440A stainless steel inherently has an elastic limit of 1650 MPa. It is well known in the art that tempered 440A stainless steel is resistant to corrosion due to its high chromium content. Therefore it would have been obvious to one with ordinary skill in the art at the time the

invention was made to use tempered 440A stainless steel for the metal parts of Wessely, for the purpose of resisting corrosion.

Claim 15. Wessely as modified above suggests that at least one of the parts is made of steel and has an elastic limit of more than 1000 MPa.

Claim 16. Wessely discloses that a ratio of the radius of the hem to a sum of the thicknesses of the various parts one wishes to assembly along the junction section is between 2 and 10.

Claim 17. Wessely discloses that the ratio of the difference between the radius of the hem and the thickness of the outermost metal with the thickness of the innermost metal is more than 2.

Claim 18. Wessely discloses that the nature of thickness of the various parts (20, 4) is not identical.

Claim 19. Wessely discloses that the junction is not rectilinear and has a local curvature, the radius of which is more than at least five times the external radius of the hem.

Claim 31. Wessely discloses a product obtained by the manufacturing method described in claim 14, having at least two simple sheet metal parts (2, 4) in order to construct a structural component, at least one metal parts having a very high elastic limit (1650 MPa, as modified in claim 14), and low formability (with respect to other materials such as annealed aluminum alloy 1100) wherein the metal parts have been formed by at least a bending process and are arranged with respect to each other along a junction section (19), and are assembled with a curved hem (19) along the junction section, the hem mechanically reinforcing the structure.

Claim 32. Wessely discloses that a ratio of the radius of the hem to a sum of the thicknesses of the various parts one wishes to assembly along the junction section is between 2 and 10.

Claim 33. Wessely discloses that the ratio of the difference between the radius of the hem and the thickness of the outermost metal with the thickness of the innermost metal is more than 2.

Claim 35. Wessely discloses that the product results from the assembly of two parts (2, 4) by means of two hems so as to form a closed cross section at least one of the two parts having a U-shaped cross section (at bends of 2 and 4). The word "hem" is taken by the examiner to mean "rim or boarder" in accordance with Merriam-Webster's Collegiate Dictionary Tenth Edition. Therefore both element 2 and element 4 comprise "hems" near 19 within the broadest reasonable interpretation of the claims.

Claims 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessely U.S. Patent 4055133 in view of Ragsdale U.S. Patent 2125692.

Claim 20. Wessely does not disclose that after the hem crimping, blocking of the hem with respect to the sliding of the assembled parts along the junction section is achieved by bonding. Ragsdale teaches (fig.1 and page 2, left column, ll.10-20) that hems may be bonded by welding. Ragsdale does not expressly state why welding of hems would be beneficial, however it appears that welding increases the joint strength of the hems. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify the crimped hems of Wessely to be bonded by welding for the purpose of improving joint strength.

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessely U.S. Patent 4055133 in view of Nakata U.S. Patent 3151767 and Lincavage U.S. Patent 5327631.

Claim 21. Wessely does not disclose locally crushing the hem. Nakata teaches (figs.5, 6) locally crushing (at 21) a hem after crimping (col.3. ll.35-45). Nakata does not expressly state why the hem is locally crushed. However, it appears that locally crushing the hem improves joint strength. Therefore, it would have been obvious to one with ordinary skill at the time the invention was made to locally crush the crimped hem of Wessely, as taught by Nakata, for the purpose of improving joint strength. Nakata does not expressly state what tool is used to locally crush the sheet metal hem. Lincavage teaches (fig.3) a press tool (19) that can be used for locally crushing sheet metal. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to modify Nakata to use a press tool, as taught by Lincavage, for the purpose of crushing the hem of Nakata.

Claim 22. Lincavage teaches that the press tool comprises a V-shaped (tapered portion is V-shaped) punch with a rounded end (left end is circular in cross section) and a flat anvil (right end of 19).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wessely U.S. Patent 4055133 in view of Nakata U.S. Patent 3151767.

Claim 23. Wessely does not disclose indentation. Nakata teaches (figs.5, 6) indentation (at 21) performed on a hem after crimping (col.3. ll.35-45). Nakata does not expressly state why the hem is indented. However, it appears that indenting the hem improves joint strength.

Art Unit: 3679

Therefore, it would have been obvious to one with ordinary skill at the time the invention was made to indented the crimped hem of Wessely, as taught by Nakata, for the purpose of improving joint strength.

Claims 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wessely U.S. Patent 4055133 in view of Nakata U.S. Patent 3151767, as applied to claim 23 above, and further in view of Zmyslowski U.S. Patent 5603153.

Claim 24. Wessely as modified by Nakata does not suggest that the indentation is achieved with a press tool designed to simultaneously perform a plurality of indentations. Zmyslowski teaches (col.4, ll.5-10) indentations (46) achieved with a press tool (42, 44) designed to simultaneously perform a plurality of indentations (46). Performing a plurality of indentations simultaneously decreases the manufacture time of a product. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to further modify Wessely such that the indentation, taught by Nakata, is achieved with a press tool designed to simultaneously perform a plurality of indentations, as taught by Zmyslowski, for the purpose of decreasing manufacture time.

Claim 25. Nakata teaches that the indentations present an indentation pitch. Nakata does not expressly state that the pitch is 5 to 10 times the outside diameter of the hem as formed. It has generally been recognized that the optimization of proportions in a prior art device is a design consideration within the skill of the art. In re Reese, 290 F.2d 839, 129 USPQ 402 (CCPA 1961). Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to optimize the proportion of the pitch to be 5 to 10 times the

Art Unit: 3679

outside diameter of the hem as formed, since such practice is a design consideration within the skill of the art.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wessely U.S. Patent 4055133 in view of Ragsdale U.S. Patent 2125692.

Claim 34. Wessely does not expressly disclose what assembly the hems are used in. Ragsdale teaches (fig. 1) a two-web I-shaped girder assembly obtained by assembling four constituent parts (top, bottom, left and right sheets of 10) connected by four hems (at the corners) along the junction section of the four parts taken in pairs. Ragsdale teaches (p.1, left col., ll. 1-35) that the two-web I-shaped girder is beneficial in that it is lightweight, strong and costs less than other types of girders. Therefore, it would have been obvious to one with ordinary skill in the art at the time the invention was made to use the hems of Wessely to construct a girder, as taught by Ragsdale, since the girder of Ragsdale is lightweight, strong and costs less than other types of girders.

Allowable Subject Matter

Claims 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 27. The prior art does not disclose or suggest that alternate serrated cutouts are made in the two simple sheets of metal parts in a region to be hem-assembled to cooperate for

ensuring the blocking along the junction section, the cutouts being made during manufacturing of the parts using a press.

Claims 28-30 depend from claim 27 and are similarly objected to.

Response to Arguments

Applicant's arguments with respect to the claims have been considered but are moot (with the exception of those addressed below) in view of the new ground(s) of rejection, which were necessitated by amendment.

The applicant argues that "Wessely does not disclose a manufacturing method to create a complex-shaped structural component of open cross-section, preferably **[BUT NOT NECESSARILY]** U-shaped or **[NOT AND]** of closed cross section". This is not persuasive since Wessely discloses (fig.8) a method for manufacturing a complex-shaped structural component (the structural component shown in fig.8) of closed cross section, thus meeting the above-mentioned limitation within the broadest reasonable interpretation of the claim language.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Referring to complex shaped structural components:

Fohr U.S. Patent U.S. Patent 3716895

Andersen U.S. Patent 4190160

Maruko U.S. Patent 4982487

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor MacArthur whose telephone number is (703) 305-5701. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Browne can be reached on (703) 308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

VLM

VLM
January 14, 2004

Lynne H. Browne
Supervisory Patent Examiner
Technology Center 3600